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CLAIMS:

1.   An apparatus (210) in a digital video transmitter (110) for adaptively changing an error protection strategy of a transmission of digital video signals through a transmission channel (120) depending upon characteristics of the transmission channel (120), said apparatus (210) comprising a video classification processor (210) that is capable of classifying digital video signals based upon sequence dependent characteristics of the digital video signals.

2.   An apparatus (210) as claimed in Claim 1 wherein said video classification processor (210) is capable of classifying digital video signals based upon an error concealment strategy that is employed in the digital video transmitter (110).

3.   An apparatus 210 as claimed in Claim 2 wherein said video classification processor (210) determines a priority of at least one video data packet using said error concealment strategy.

4.   An apparatus (210) as claimed in Claim 3 wherein said video classification processor (210) determines a priority of at least one video data packet based upon a mean squared error between an original data packet and a concealed data packet.

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5.   An apparatus (210) as claimed in Claim 3 wherein said video classification processor (210) determines a priority of at least one video data packet based upon an incurred distortion when a video data packet is lost.

6.   An apparatus (210) as claimed in Claim 5 wherein said incurred distortion is a function of one of: a video bit rate, a delay, a loss rate, a priority based on objective criteria, an error concealment strategy, and visual conflict masking.

7.   An apparatus (210) as claimed in Claim 1 wherein said video classification processor (210) classifies priorities of video data packets using objective criteria; and
        wherein said video classification processor (210) determines priorities of sub-classes of video data packets differentially.

8.   An apparatus (210) as claimed in Claim 7 wherein said video classification processor (210) classifies a priority of a sub-class of video data packets by assigning a lower priority to B frames and P frames than to I frames of a video sequence.

9.   An apparatus (210) as claimed in Claim 7 wherein said video classification processor (210) classifies a priority of a sub-class of video data packets by assigning a lower priority to at least one data partition of a data-partitioned coded video sequence.

10.   An apparatus (210) as claimed in Claim 1 wherein said video classification processor (210) classifies priorities of video data packets using objective criteria;
        wherein said video classification processor (210) determines one of: sequence dependent characteristics of said digital video signals and an error concealment algorithm; and
        wherein said video classification processor (210) re-classifies said priorities of said video data packets determined using said objective criteria using one of: said sequence dependent characteristics of said digital video signals and said error concealment algorithm.

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11.   An apparatus (210) as claimed in Claim 1 wherein at least one input of said video classification processor (210) is coupled to an output of a waveform coder (220), and wherein at least one output of said video classification processor (210) is coupled to an input of a transport coder (240).

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12. An apparatus (210) as claimed in Claim 1 wherein said video classification processor (210) comprises a video sequence analysis controller (330, 340) that comprises: a controller (330) that is capable of executing computer instructions; and

video sequence analysis software (340) that comprises:

5   a module (350) for determination of priority classification of video data packets based on objective criteria;

a module (360) for determination of sequence dependent features of a video sequence;

a video data packet classification module (370);

10   a module (380) for determination of an error concealment algorithm; and

a module (390) for determination of mean squared error for a lost video data packet.

13. A method for adaptively changing an error protection strategy of a transmission of

15 digital video signals from a digital video transmitter (110) through a transmission channel (120) depending upon characteristics of the transmission channel (120), said method comprising the steps of:

classifying digital video signals according to objective criteria;

determining sequence dependent characteristics of the digital video signals; and

20   classifying video data packets in sub-priorities based upon the sequence dependent characteristics of the digital video signals.

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14.   A method as claimed in Claim 13 further comprising the steps of:

determining an error concealment algorithm that is employed in the digital video transmitter; and

classifying video data packets in sub-priorities based upon the error concealment

5   algorithm.

15.   A method as claimed in Claim 14 further comprising the steps of:

determining a mean squared error for a lost video data packet when said error concealment algorithm is being used; and

10   classifying video data packets in sub-priorities based upon the mean squared error and the error concealment algorithm.

16.   A method as claimed in Claim 14 further comprising the step of one of:

re-classifying said priorities of said video data packets determined using

15   said objective criteria by using said sequence dependent characteristics of said digital video signals; and

re-classifying said priorities of said video data packets determined using said objective criteria by using said error concealment algorithm.

20   17.   For use in a digital video signal transmitter (110), computer-executable instructions stored on a computer-readable storage medium (320) for adaptively changing an error protection strategy of a transmission of digital video signals through a transmission channel (120) depending upon characteristics of the transmission channel (120), said computer-executable instructions comprising the steps of:

25   classifying digital video signals according to objective criteria;

determining sequence dependent characteristics of the digital video signals; and

classifying video data packets in sub-priorities based upon the sequence dependent characteristics of the digital video signals.

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18. The computer-executable instructions stored on a computer-readable storage medium (320) as claimed in Claim 17 further comprising the steps of:

determining an error concealment algorithm that is employed in the digital video transmitter; and

5   classifying video data packets in sub-priorities based upon the error concealment algorithm.

19. The computer-executable instructions stored on a computer-readable storage medium (320) as claimed in Claim 18 further comprising the steps of:

10   determining a mean squared error for a lost video data packet when said error concealment algorithm is being used; and

classifying video data packets in sub-priorities based upon the mean squared error and the error concealment algorithm.

15   20. The computer-executable instructions stored on a computer-readable storage medium (320) as claimed in Claim 18 further comprising the step of one of:

re-classifying said priorities of said video data packets determined using said objective criteria by using said sequence dependent characteristics of said digital video signals; and

20   re-classifying said priorities of said video data packets determined using said objective criteria by using said error concealment algorithm.